

Expected Application Sums PDF for Bank PO/ Clerk Prelims Exam

1) 3 years ago, Ganesh and Magathi's age is in the ratio of 3: 4. Sum of their present ages is 7 years more than Mano's present age. Find the present age of Mano, if Magathi's age after 4 years is 35 years.

- a) 40 years
- b) 44 years
- c) 48 years
- d) 42 years
- e) None of these

2) Rajesh, Meena and Chandru started a business. Rajesh invests 3 times as much as Meena and Meena invests $(4/5)^{\text{th}}$ of Chandru's investment. Find the share of Rajesh, if the total profit at the end of the year is Rs. 136500.

- a) Rs. 78000
- b) Rs. 74000
- c) Rs. 66000
- d) Rs. 62000
- e) None of these

3) If the compound interest on a certain sum for 2 years at 10% per annum is Rs. 6300, then find the corresponding simple interest.

- a) Rs. 5800
- b) Rs. 6000
- c) Rs. 5200
- d) Rs. 6100
- e) None of these

4) A and B together can complete a work in 12 days while A is 50% more efficient than B, then in how many days the work gets completed if they work on alternative days starting with A?

- a) 24 days
- b) 20 days
- c) 18 days
- d) 16 days
- e) None of these

5) Train A of length 180 m crosses another train B travelling in opposite direction in 15 seconds. Train A crosses a pole in 20 sec and the length of train A is half of the length of train B then find the speed of train B.

- a) 27 m/sec
- b) 33 m/sec
- c) 39 m/sec
- d) 21 m/sec
- e) None of these

6) Pipe P, Q and R can fill the tank in 16, 20 and 24 hours respectively. All three pipes began to fill the tank together but pipe P and Q left 4 and 6 hours respectively before filling the tank. Find the total time taken by all of them to fill the tank.

- a) 12 $(4/7)$ hours
- b) 11 $(5/9)$ hours
- c) 9 $(11/34)$ hours
- d) 10 $(2/37)$ hours
- e) None of these

7) P, Q and R started a business by investing Rs. 15000, Rs. 25000 and Rs. 32000 respectively. After 5 months, P invested 30 % of initial investment more and at the same time R withdraws Rs. 7000. If the total profit at the end of the year is Rs. 84650, then find the share of Q.

- a) Rs. 24000
- b) Rs.22500
- c) Rs. 31500
- d) Rs. 30000
- e) None of these

8) The simple interest accrued on an amount of Rs. 30000 at the end of 3 years is Rs. 10800. Find the corresponding compound interest.

- a) Rs. 11562.56
- b) Rs. 13285.78
- c) Rs. 12147.84

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- d) Rs. 10326.22
e) None of these

9) A box contains 6 pink, 4 red and 5 yellow marbles. If 2 marbles are picked at random, then find the probability that the marbles are either yellow or pink.

- a) $\frac{9}{31}$
b) $\frac{11}{34}$
c) $\frac{15}{29}$
d) $\frac{5}{11}$
e) None of these

10) Two men undertook to do a piece of work for Rs. 5200. One alone could do it in 8 days and the other can do it in 6 days while with the assistance of a boy, work gets completed in 3 days. Find the share of a boy.

- a) Rs. 650
b) Rs. 720
c) Rs. 840
d) Rs. 480
e) None of these

11) Lavanya purchased a dining table for Rs. 12000 and sold it at a loss of 6%, with that money she purchased another dining table and sold it at the profit of 15%. Find the overall profit/loss.

- a) Rs. 864
b) Rs. 728
c) Rs. 972
d) Rs. 1056
e) None of these

12) The amount obtained on Rs. 15625 at an interest 8% per annum compounded annually for certain period of time is Rs. 19683. Then find the time in years.

- a) 3 years
b) 5 years
c) 2 years

- d) 4 years
e) None of these

13) 16 men can complete a piece of work in 24 days. 20 women can complete the same work in 36 days. In how many days will 12 men and 15 women together complete the same work?

- a) $20\frac{3}{8}$ days
b) $18\frac{2}{3}$ days
c) $21\frac{5}{6}$ days
d) $19\frac{1}{5}$ days
e) None of these

14) Rs. 25000 was partly invested in scheme A for 3 years and partly in scheme 'B' for 2 years. Both the schemes offered simple interest at 6% per annum. The total interest accrued from A and B at the end of their respective investment period was Rs. 3900. How much amount was invested in scheme A?

- a) Rs. 12000
b) Rs. 10000
c) Rs. 15000
d) Rs. 18000
e) None of these

15) The ratio of the radius of two cylinders (A and B) is 3 : 4. The ratio of the height of cylinders A to B is 5 : 3. What is the ratio of the volumes of cylinders A to B?

- a) 11 : 17
b) 8 : 13
c) 21 : 19
d) 15 : 16
e) None of these

16) Perimeter of a rectangle is x meter and circumference of a circle is 8 meter more than the perimeter of the rectangle. Ratio of radius of circle and length of the rectangle is 7 : 12 and ratio of length and breadth of rectangle is 3 : 2. Find the area of the rectangle.

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- a) 418 Sq m
- b) 352 Sq m
- c) 436 Sq m
- d) 384 Sq m
- e) None of these

17) Abinav marks an item one-third more than the CP but he allows successive discount of $x\%$ and $(x + 10)\%$. If the CP of an item is Rs. 900 and he losses 4% , then find the value of 'x'.

- a) 25 %
- b) 15 %
- c) 10 %
- d) 20 %
- e) None of these

18) The price of Item A is 10% more than that of Item B. How much percentage the price of Item B is less than that of Item A?

- a) 11.25 %
- b) 10.11 %
- c) 8.23 %
- d) 9.09 %
- e) None of these

19) A jar contains 92 litres of mixture of milk and water in the ratio of 19 : 4. 46 litres of mixture is taken out and 4 litres of water is added to the jar. Find the percentage of water in the mixture.

- a) 24 %
- b) 27 %
- c) 32 %
- d) 18 %
- e) None of these

20) The length and breadth of a rectangular piece of land are in the ratio of 3 : 2. The owner spent Rs. 5700 for surrounding it from all the sides at the rate of Rs 9.50 per meter. Find the area of the rectangular land.

- a) 19500 Sq m

- b) 16800 Sq m
- c) 21600 Sq m
- d) 28400 Sq m
- e) None of these

21) A vessel of 120 liters contains milk and water. If 60% of milk and 30% of water is taken out, then the vessel will be half empty. Find the ratio of initial quantity of milk and water in the vessel.

- a) 3 : 2
- b) 5 : 3
- c) 7 : 5
- d) 2 : 1
- e) None of these

22) How many 6 letter words with or without meaning can be formed out of the letters of the word, 'PRECAUTION', if repetition of letters is not allowed?

- a) 380
- b) 2840
- c) 151200
- d) 56600
- e) None of these

23) A man drives 360 km from A to B in 5 hours and returns to B in 4 hours. If M is the average speed of the entire trip, then the average speed for the journey from B to A exceeds M by?

- a) 10 km/hr
- b) 16 km/hr
- c) 12 km/hr
- d) 8 km/hr
- e) None of these

24) A box contains the coins of 10p, 50p and 1 rupee is in the ratio of 5: 4: 3. If there is Rs. 22 in all, then find the total number of 50p coins.

- a) 14
- b) 16

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- c) 12
- d) 18
- e) None of these

25) A train crosses a pole in 25 sec and the same train crosses a platform of length 150 m in 40 sec. Find the length of the train.

- a) 200 m
- b) 250 m
- c) 150 m
- d) 400 m
- e) None of these

26) The average marks of Science of a class of 40 students is 36. If the marks of three students were misread as 48, 52 and 56 of the actual marks 58, 66 and 72 respectively, then what would be the correct average?

- a) 37
- b) 36.5
- c) 37.5
- d) 36.25
- e) None of these

27) Sanjay invested Rs. 40000 in SI at the rate of $2x$ % per annum for two years and the same amount is invested in CI at the same rate of interest. Find the rate of interest per annum, if the interest received by him in CI is Rs. 576 more interest than the interest received by him in S.I.

- a) 8 %
- b) 10 %
- c) 12 %
- d) 14 %
- e) None of these

28) The ratio of curved surface area to the total surface area of a right circular cylinder is 3 : 8. Find the volume of the cylinder, if the area of the base is 3850 Sq cm.

- a) 82260 cm^3

- b) 76480 cm^3
- c) 80850 cm^3
- d) 72540 cm^3
- e) None of these

29) Sunil spends 60% of his income on education fee. He spends 30% of remaining on food and 50% of the remaining on shopping. If he left with him Rs.2800, then what is the amount he spends on education fee?

- a) Rs.12000
- b) Rs.20000
- c) Rs.24000
- d) Rs.28000
- e) None of these

30) There are certain number of students in the class and the average weight of the class is x kg. If after one month, 5 students of the class are reduced their weight by 4 kg, then the average weight of the class is reduced by 2 kg. What is the total number of students in the class?

- a) 20
- b) 15
- c) 10
- d) 8
- e) None of these

31) P, Q and R started a business by investing in the ratio of 6: 8: 9. After 6 months, Q invested 50 % more than the initial investment and after another 2 months, P withdraw one – third of the initial investment. Find the total profit, if the share of P after one year is Rs. 64000.

- a) Rs. 275000
- b) Rs. 282000
- c) Rs. 292000
- d) Rs. 288000
- e) None of these

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32) The speed of a bus is seven-eighth of the speed of a train. Train covers 576 km in 8 hours. How much distance will the car cover in 5 hours?

- a) 342 km
- b) 315 km
- c) 378 km
- d) 393 km
- e) None of these

33) Four friends Smriti, Geeta, Suman and Rupam jog around a circular field and complete one round in 10, 15, 16 and 20 seconds respectively. In what time all the four friends will meet again at the starting point?

- a) 8 minutes
- b) 4 minutes
- c) 2 minutes
- d) 6 minutes
- e) None of these

34) Two unbiased dice are thrown simultaneously. Find the product of the probability that sum of the numbers on both the dice are prime and probability that sum of the numbers on both the dice are composite.

- a) 33/108
- b) 33/133
- c) 35/72
- d) 35/144
- e) None of these

35) Speed of a boat in still water is three times the speed of the stream. Time taken by the boat to travel 180 Km downstream is 9 hours. Find the respective ratio of the time taken by the boat to travel 80 Km downstream and 50 Km upstream.

- a) 5:6
- b) 4:5
- c) 3:4
- d) 2:3

e) None of these

36) If numerator of a fraction is multiplied by $\frac{5}{7}$ and denominator of the fraction is decreased by 20%, the fraction becomes $\frac{5}{8}$. Find the sum of $\frac{3}{7}$ th of the fraction and 25% of the fraction.

- a) $\frac{19}{40}$
- b) $\frac{15}{29}$
- c) $\frac{17}{30}$
- d) $\frac{13}{27}$
- e) None of these

37) In an examination, Rahul got 278 marks which is 48 more than Ganesh's marks. Kavita got 60% marks out of total marks in the examination. Marks of Kavita is 10 more than mark of Ganesh. Find the percentage of marks obtained by Rahul in the examination.

- a) 69.5%
- b) 78.5%
- c) 72.5%
- d) 67.5%
- e) None of these

38) A man sells a tea cup at a profit of 12%. If he bought it 20% less and sold it for Rs. 6 more, he would have gained 50%. Find the cost price of the tea cup.

- a) Rs100
- b) Rs50
- c) Rs75
- d) Rs125
- e) Rs150

39) A ring is sold at certain price. By selling it at $\frac{7}{11}$ of that price, one loses 30%. Find the gain percent at original price.

- a) 20%
- b) None of these
- c) 30%
- d) 10%

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e) Can't be determined

40) Yuva covers total distance in 1 hour 18 minutes by covering $\frac{3}{5}$ of the distance at 24 kmph and the rest at 10 kmph. Find the total distance.

- a) 16 km
- b) 20 km
- c) 25 km
- d) 35km
- e) None of these

41) A man travelled from his office to market at the rate of 20 kmph, and walked back in 15 kmph. If the whole journey took 5 hours 50 minutes, find the distance from market to office.

- a) 25 km
- b) 35 km
- c) 50 km
- d) 40 km
- e) None of these

42) How many different ways a group of 2 men, 3 women to be formed out of 5 men and 5 women?

- a) 720
- b) 60
- c) 120
- d) 100
- e) None of these

43) A bag contains 5 red balls, 4 blue balls and 6 green balls, three balls are drawn at random. Find the probability that at least one ball is in red color.

- a) $\frac{21}{23}$
- b) $\frac{47}{91}$
- c) $\frac{11}{67}$
- d) $\frac{67}{91}$
- e) None of these

44) The ratio of the radius and height of a right circular cone is 3: 4. If the curved surface area of the cone is $375 \pi \text{ m}^2$, find the total surface area of the cone.

- a) $500 \pi \text{ m}^2$
- b) $600 \pi \text{ m}^2$
- c) $400 \pi \text{ m}^2$
- d) $300 \pi \text{ m}^2$
- e) $700 \pi \text{ m}^2$

45) In a stream running at 5 kmph, a boat goes 25 km upstream and back again to the starting point in 3 h 45 min. Find the speed of the boat.

- a) 10 km
- b) 20 km
- c) 15 km
- d) 30 km
- e) None of these

46) If two pipes are opened simultaneously, the tank will be filled in 7.2 hours. One pipe fill the tank 6 h faster than that of another. How many hours does it take the second pipe to fill the reservoir?

- a) 18 hours
- b) 12hours
- c) 9hours
- d) 27hours
- e) None of these

47) An amount of Rs.4659 was divided among A, B and C. If each of them received Rs.13 less, their shares would have been in the ratio of 9: 11: 13. The difference between the money received by A and C was:

- a) Rs.660
- b) Rs.600
- c) Rs.540
- d) Rs.580
- e) None of these

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48) Two numbers are in the ratio of 11: 23. If their HCF is 6, find the average of two numbers?

- a) 102
- b) 204
- c) 68
- d) 105
- e) None of these

49) Two pipes A and B can fill an empty tank in 12 hours and 15 hours respectively. Both the pipes opened simultaneously, find the time taken to complete one – sixth of the tank.

- a) 15/2 hrs
- b) 29/3 hrs
- c) 16/3 hrs
- d) 29/2 hrs
- e) 10/9 hrs

50) The ratio of present age of P and Q is 3: 5. R is 5 years younger than Q and the present age of T is 2 times the present age of S. The average age of Q, R and S is 24 years. Find the present age of P, if the age of T, after 6 years is 40 years.

- a) 20 years
- b) 22 years
- c) 24 years
- d) 18 years
- e) None of these

Answers:

1) Answer: C

3 years ago, the ratio of ages of Ganesh and Magathi = 3: 4 (3x, 4x)

Magathi's age after 4 years = 35 years

Magathi's present age = 31 years

4's = 28

1's = 7

Ganesh's present age = $3x + 3 = 24$ years

According to the question,

$31 + 24 = 7 + \text{Mano's present age}$

$55 - 7 = \text{Mano's present age}$

Mano's present age = 48 years

2) Answer: A

The ratio of investment of Rajesh and Meena = 3: 1

The ratio of investment of Meena and Chandru = 4: 5

The ratio of investment of Rajesh, Meena and Chandru = 12: 4: 5

21's = 136500

1's = 6500

The share of Rajesh = $12's = 6500 * 12 = \text{Rs. } 78000$

3) Answer: B

Let the sum of money be X,

$X * [(1 + (10/100))^2 - 1] = 6300$

$X * [(11/10)^2 - 1] = 6300$

$X * [(121/100) - 1] = 6300$

$X * (21/100) = 6300$

$X = 6300 * (100/21) = \text{Rs. } 30000$

Simple interest = $(30000 * 10 * 2) / 100 = \text{Rs. } 6000$

4) Answer: A

The efficiency of A and B = 150: 100 = 3: 2

The ratio of total number of days taken by A and B = 2: 3 (2x, 3x)

$(1/2x) + (1/3x) = 1/12$

$5x / (2x * 3x) = 1/12$

$x = 10$

The time taken by A and B = 2x, 3x = 20 and 30 days

Total units = 60 (LCM of 20, 30)

A = > 3 units

B = > 2 units

A's one day work = 3 units

B's one day work = 2 units

Work done in 2 days = 3 + 2 = 5 units

Work done in 24 days = 5 * 12 = 60 units

Work will be completed in 24 days

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5) Answer: A

Let the speed of train B be x ,

Length of Train A = 180 m

Length of Train B = 360 m

$T = D/S$

$$\{(180 + 360) / [(180/20) + x]\} = 15$$

$$540/(9 + x) = 15$$

$$36 = 9 + x$$

$$x = 36 - 9 = 27 \text{ m/sec}$$

6) Answer: D

$$(x - 4)/16 + (x - 6)/20 + x/24 = 1$$

$$(15x - 60 + 12x - 72 + 10x)/240 = 1$$

$$37x - 132 = 240$$

$$37x = 372$$

$$x = 372/37 = 10 \text{ (2/37) hours}$$

7) Answer: D

The share of P, Q and R

$$=> [15000*5 + 15000*(130/100)*7] : [25000*12]$$

$$: [32000*5 + 25000*7]$$

$$=> 211500 : 300000 : 335000$$

$$=> 423 : 600 : 670$$

Total profit = Rs. 84650

$$1693's = 84650$$

$$1's = 50$$

The share of Q = Rs. 30000

8) Answer: C

$$S.I = PNR/100$$

$$10800 = (30000*3*R)/100$$

$$R = (10800*100)/(30000*3) = 12 \%$$

$$C.I = P*(1 + (R/100))^n - 1$$

$$=> 30000*(1 + (12/100))^3 - 1$$

$$=> 30000*(112/100)^3 - 1$$

$$=> 30000*[(28/25)^3 - 1]$$

$$=> 30000*[(21952/15625) - 1]$$

$$=> 30000*(6327/15625)$$

$$=> \text{Rs. } 12147.84$$

(Or)

$$S.I = PNR/100$$

$$10800 = (30000*3*R)/100$$

$$R = (10800*100)/(30000*3) = 12 \%$$

Compound Interest is,

$$30000*(12/100) = 3600$$

$$33600*(12/100) = 4032$$

$$37632*(12/100) = 4515.84$$

$$CI = 3600 + 4032 + 4515.84 = \text{Rs. } 12147.84$$

9) Answer: D

Total probability = $15C_2$

Required probability = $5C_2$ or $6C_2$

The probability that the marbles are either red or pink,

$$=> 5C_2 \text{ or } 6C_2 / 11C_2$$

$$=> 5/11$$

10) Answer: A

$$(1/8) + (1/6) + 1 \text{ boy} = (1/3)$$

$$1 \text{ boy} = (1/3) - [(1/8) + (1/6)]$$

$$1 \text{ boy} = (1/3) - (7/24) = (8 - 7)/24 = 1/24$$

The share of two men and a boy = $(1/8) : (1/6) : (1/24)$

$$=> 3 : 4 : 1$$

$$8's = 5200$$

$$1's = 650$$

The share of boy = Rs. 650

11) Answer: C

$$C.P1 = 12000, \text{ Loss } \% = 6 \%$$

$$S.P1 = 12000 * (94/100) = \text{Rs. } 11280$$

With that money she purchased another dining table and sold it at the profit of 15 %,

$$C.P2 = 11280, \text{ Profit } \% = 15 \%$$

$$S.P2 = 11280*(115/100) = \text{Rs. } 12972$$

$$\text{The overall profit} = 12972 - 12000 = \text{Rs. } 972$$

12) Answer: A

$$\text{Amount} = P*(1 + r/100)^n$$

$$19683 = 15625*(1 + (8/100))^n$$

$$19683 / 15625 = (108/100)^n$$

$$19683 / 15625 = (27/25)^n$$

$$(27/25)^3 = (27/25)^n$$

$$n = 3 \text{ years}$$

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13) Answer: D

Work = Men*days

$$16 m * 24 = 20 w * 36$$

$$8 m = 15 w$$

$$12 m + 15 w = 12*(15/8) w + 15 w = (45/2) w +$$

$$15 w = 75/2 w$$

Women days

$$20 \qquad 36$$

$$(75/2) \qquad ?$$

$$(20*36) = (75/2)*x$$

$$x = (20*36*2)/75 = 96/5 = 19 \frac{1}{5} \text{ days}$$

14) Answer: C

Let us take the investment of scheme A be x,

Investment of B = 25000 - x

$$(x*3*6)/100 + ((25000 - x)*2*6)/100 = 3900$$

$$18x + 300000 - 12x = 390000$$

$$6x = 390000 - 300000$$

$$x = 15000$$

Investment of Scheme A = x = Rs. 15000

15) Answer: D

Let the radius of cylinder A be 3x and that of cylinder B be 4x,

Height of cylinder A = 5y and Height of cylinder B = 3y

$$\text{Volume of cylinder A} = \pi r^2 h$$

$$\Rightarrow (22/7) * (3x)^2 * 5y = (22/7) * 9x^2 * 5y$$

$$\text{Volume of cylinder B} = \pi r^2 h$$

$$\Rightarrow (22/7) * (4x)^2 * 3y = (22/7) * 16x^2 * 3y$$

$$\text{Required ratio} = [(22/7) * 9x^2 * 5y] : [(22/7) * 16x^2 * 3y] = 15 : 16$$

16) Answer: D

$$\text{Perimeter of rectangle} = 2*(l + b) = x$$

$$2l + 2b = x \text{ and } 2\pi r = x + 8$$

$$r/l = 7/12 \text{ and } l/b = 3/2$$

$$r : l : b = 7 : 12 : 8 \text{ (7y, 12y, 8y)}$$

$$2\pi r = x + 8$$

$$2\pi r = 2l + 2b + 8$$

$$2*(22/7)*7y = 2*12y + 2*8y + 8$$

$$44y = 24y + 16y + 8$$

$$44y - 40y = 8$$

$$4y = 8$$

$$y = 2$$

$$\text{Length of the rectangle} = 12y = 24 \text{ m}$$

$$\text{Breadth of the rectangle} = 8y = 16 \text{ m}$$

$$\text{The area of the rectangle} = l*b = 24*16 = 384 \text{ Sq m}$$

17) Answer: C

$$SP = 900*(96/100) = 864$$

$$MP = 900*(4/3) = \text{Rs. } 1200$$

According to the question,

$$1200*[(100 - x)/100]*[(90 - x)/100] = 864$$

$$9000 - 100x - 90x + x^2 = 7200$$

$$x^2 - 190x + 1800 = 0$$

$$(x - 180)(x - 10) = 0$$

$$x = 180, 10 \text{ (180 should be eliminated)}$$

$$x = 10 \%$$

18) Answer: D

$$\text{Required \%} = [R/(100 + R)]*100, \text{ Here } R = 10 \%$$

$$\Rightarrow (10/110)*100 = 9.09 \%$$

19) Answer: A

$$\text{Quantity of water in the mixture} = 46 * (4/23) = 8 \text{ litres}$$

$$\text{Quantity of milk in the mixture} = 46 * (19/23) = 38 \text{ litres}$$

$$\text{Remaining mixture} = 92 - 46 = 46 \text{ litres}$$

Now, 4 litres of water is added,

$$\Rightarrow 8 + 4 = 12 \text{ litres}$$

$$\text{Percentage of water} = (12/50)*100 = 24 \%$$

20) Answer: C

$$\text{Perimeter of the field} = 5700/9.50 = 600 \text{ m}$$

$$2*(3x + 2x) = 600 \Rightarrow x = 60$$

So, length = 180 m and breadth = 120 m

$$\text{The area of the rectangular land} = lb = 180*120 = 21600 \text{ Sq m}$$

21) Answer: D

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$$M + W = 120 \rightarrow (1)$$

$$(60/100) * M + (30/100) * W = 60$$

$$6M + 3W = 600 \rightarrow (2)$$

By solving the equation (1) and (2), we get,

$$M = 80 \text{ liters, } W = 40 \text{ liters}$$

$$\text{Required ratio} = 80 : 40 = 2 : 1$$

22) Answer: C

'PRECAUTION' contains 10 different letters.

$$\text{Required number of words} = 10P_6$$

$$\Rightarrow (10 * 9 * 8 * 7 * 6 * 5) = 151200$$

23) Answer: A

The speed from A to B = $360/5 = 72$ km/hr

The speed from B to A = $360/4 = 90$ km/hr

The average speed of the entire trip = $2xy/(x + y)$

$$\Rightarrow [(2 * 72 * 90) / 162]$$

$$\Rightarrow 80 \text{ km/hr}$$

$$\text{Required difference} = 90 - 80 = 10 \text{ km/hr}$$

24) Answer: B

A box contains the coins of 10p, 50p and 1 rupee is in the ratio = 5: 4: 3 (5x, 4x, 3x)

$$22 = [(5x * 10) / 100] + [(4x * 50) / 100] + [(3x * 1)]$$

$$22 = (50x/100) + (200x/100) + 3x$$

$$22 = (x/2) + 2x + 3x$$

$$44 = 11x$$

$$x = 4$$

$$\text{The total number of 50p coins} = 4x = 16$$

25) Answer: B

Let the length of train be x,

Here, the speed of the train is equal. So,

$$(x / 25) = (x + 150) / 40$$

$$8x = 5x + 750$$

$$3x = 750$$

$$x = 250$$

The length of the train (x) = 250 m

26) Answer: A

The average marks of Science of a class of 40 students = 36

$$\text{Total marks} = 40 * 36 = 1440$$

$$\text{Correct average} = [1440 - (48 + 52 + 56) + (58 + 66 + 72)] / 40$$

$$\Rightarrow [1440 - 156 + 196] / 40$$

$$\Rightarrow 1480 / 40 = 37$$

27) Answer: C

$$CI - SI = 576$$

$$40000 * [(1 + 2x/100)^2 - 1] - (40000 * 2x * 2) / 100 = 576$$

$$40000 * [(100 + 2x) / 100]^2 - 1 - 1600x = 576$$

$$40000 * [(10000 + 400x + 4x^2 - 10000) / 10000] - 1600x = 576$$

$$1600x + 16x^2 - 1600x = 576$$

$$16x^2 = 576$$

$$x^2 = 36$$

$$x = 6$$

$$\text{The rate of interest} = 2x \% = 12 \%$$

28) Answer: C

The ratio of curved surface area to the total surface area of a right circular cylinder = 3: 8 (3x, 8x)

$$2\pi rh / 2\pi r(r + h) = (3/8)$$

$$8h = 3r + 3h$$

$$5h = 3r$$

$$\text{The area of the base} = \pi r^2 = 3850 \text{ Sq cm}$$

$$(22/7) * r^2 = 3850$$

$$r^2 = 3850 * (7 / 22) = 1225$$

$$r = 35 \text{ cm}$$

$$h = (3 * 35) / 5 = 21 \text{ cm}$$

$$\text{The volume of the cylinder} = \pi r^2 h$$

$$\Rightarrow (22/7) * 35 * 35 * 21$$

$$\Rightarrow 80850 \text{ cm}^3$$

29) Answer: A

$$\text{Education fee} = 60/100 * x$$

$$\text{Remaining} = 40/100 * x$$

$$\text{Food} = 40/100 * x * 30/100 = 12x/100$$

$$\text{Remaining} = 40x/100 - 12x/100 = 28x/100$$

$$\text{Shopping} = 28x/100 * 50/100 = 14x/100$$

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$$\text{Remaining} = 14x/100$$

$$14x/100 = 2800$$

$$x = 20000$$

$$\text{Education fee} = (20000/100) * 60 = \text{Rs.}12000$$

30) Answer: C

Let Number of students = y

Total weight of the class = xy

Total weight of the class after reducing the weight

$$= xy - 5 * 4 = xy - 20$$

$$(x - 2) * y = xy - 20$$

$$xy - 2y = xy - 20$$

$$2y = 20$$

$$y = 10$$

31) Answer: C

The share of P, Q and R,

$$= > [6x * 8 + 6x * (2/3) * 4]: [8x * 6 +$$

$$8x * (150/100) * 6]: [9x * 12]$$

$$=> 64x : 120x : 108x$$

$$=> 16 : 30 : 27$$

$$16's = 64000$$

$$1's = 4000$$

$$\text{Total profit} = 73's = \text{Rs.} 292000$$

32) Answer: B

Speed of train = $576/8 = 72$ km/hr

Speed of bus = $72 \times (7/8) = 63$ km/hr

Required distance = $63 \times 5 = 315$ km

33) Answer: B

Time after which they will meet again at the

starting point = LCM of 10, 15, 16, 20

$$= 240 \text{ seconds}$$

$$= 240/60 \text{ minutes}$$

$$= 4 \text{ minutes}$$

34) Answer: D

Total number of outcomes = 6×6

Favourable outcomes for sum of the numbers on both the dice are prime

$$= \{(1,1), (1,2), (1,4), (1,6), (2,1), (2,3), (2,5), (3,2), (3,4), (4,1), (4,3), (5,2), (5,6), (6,1), (6,5)\}$$

Number of favourable outcomes = 15

Probability that sum of the numbers on both the dice are prime = $15/36 = 5/12$

Favourable outcomes for sum of the numbers on both the dice are composite

$$= \{(1,3), (1,5), (2,2), (2,4), (2,6), (3,1), (3,3), (3,5), (3,6), (4,2), (4,4), (4,5), (4,6), (5,1), (5,3), (5,4), (5,5), (6,2), (6,3), (6,4), (6,6)\}$$

Number of favourable outcomes = 21

Sum of the numbers on both the dice are composite = $21/36 = 7/12$

$$\text{Required product} = 5/12 \times 7/12 = 35/144$$

35) Answer: B

Let, speed of the stream = y km/h

Speed of the boat in still water = 3y Km/h

$$180/(3y + y) = 9$$

$$\Rightarrow 180/4y = 9$$

$$\Rightarrow 4y = 180/9$$

$$\Rightarrow 4y = 20$$

$$\Rightarrow y = 5$$

Hence, speed of the stream = 5 Km/h

And speed of the boat in still water = $3 \times 5 = 15$ Km/h

Time taken by the boat to travel 80 Km downstream = $80/(15 + 5)$

$$= 80/20$$

$$= 4 \text{ hours}$$

Time taken by the boat to travel 50 Km upstream

$$= 50/(15 - 5)$$

$$= 50/10$$

$$= 5 \text{ hours}$$

$$\text{Required ratio} = 4:5$$

36) Answer: A

Let, the fraction be p/q

$$(p \times 5/7)/(q \times 80/100) = 5/8$$

$$\Rightarrow p/q = 5/8 \times 80/100 \times 7/5$$

$$\Rightarrow p/q = 7/10$$

$$\text{Required sum} = 3/7 \times 7/10 + 25/100 \times 7/10$$

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$$= 3/10 + 7/40$$

$$= (12 + 7)/40$$

$$= 19/40$$

37) Answer: A

$$\text{Rahul} = 278$$

$$\text{Ganesh} = 278 - 48 = 230$$

$$\text{Kavita} = 230 + 10 = 240$$

Let, total marks in the examination = n

$$60/100 * n = 240$$

$$\Rightarrow n = 240 * 100/60$$

$$\Rightarrow n = 400$$

Percentage of marks obtained by Rahul in the examination = $278/400 * 100 = 69.5\%$

38) Answer: C

Let the cost price be 100x

Then,

$$\text{SP} = 112/100 * \text{CP} = 112x$$

$$\text{New CP} = 80x$$

$$\text{New SP} = 80x * 150/100 = 120x$$

Then,

$$120x - 112x = 6$$

$$8x = 6$$

$$x = 0.75 * 100 = \text{Rs. } 75$$

39) Answer: D

Let the original SP be x

$$\text{New SP} = 7/11 * x$$

$$\text{Loss} = 30\%$$

$$\text{CP} = 100/70 * 7x/11 = 10x/11$$

$$\text{Profit} = x - 10x/11 = x/11$$

$$\text{Profit}\% = [(x/11) \div (10x/11)] * 100 = 10\%$$

40) Answer: B

Let the total distance be x

Then,

$$[(3x/5)/24] + [(2x/5)/10] = 78/60$$

$$(3x/120) + (2x/50) = 13/10$$

$$x = 20\text{km}$$

41) Answer: C

Let the total distance be x

Then,

$$(x/15) + (x/20) = 350/60$$

$$7x = 350$$

$$x = 50\text{ km}$$

42) Answer: D

Required number of ways

$$= {}^5C_2 * {}^5C_3$$

$$= [(5 * 4)/2] * [(5 * 4 * 3)/2 * 3] = 100$$

43) Answer: D

Required probability

$$= 1 - \text{none in red color}$$

$$= 1 - {}^{10}C_3 / {}^{15}C_3$$

$$= 1 - [(10 * 9 * 8)/(3 * 2)] / [(15 * 14 * 13)/(3 * 2)]$$

$$= 67/91$$

44) Answer: B

The ratio of the radius and height of a right circular cone = 3: 4 (3x, 4x)

Then, Slanting height of the cone = 5x

We know that, the curved surface area of the cone

$$= \pi r l$$

$$\Rightarrow 375\pi \text{ m}^2 = \pi * 3x * 5x$$

$$\Rightarrow x = 5\text{m}$$

$$\text{Radius of the cone} = 3 * 5 = 15\text{m}$$

$$\text{Height of the cone} = 4 * 5 = 20\text{m}$$

$$\text{Slanting height of the cone} = 5 * 5 = 25\text{ m}$$

The total surface area of the cone = $\pi r (l + r)$

$$\Rightarrow \pi * 15 * (15 + 25) = 600\pi \text{ m}^2$$

45) Answer: C

Given that, Speed of stream = 5 kmph

Let Speed of the boat = x

Then,

$$[25/(x - 5)] + [25/(x + 5)] = 225/60$$

$$[5/(x - 5)] + [5/(x + 5)] = 3/4$$

$$4[5x + 25 + 5x - 25] = 3x^2 - 75$$

$$3x^2 - 75 - 40x = 0$$

$$x = 15, -5/3$$

$$x = 15 \text{ (neglect -ive value)}$$

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46) Answer: A

Let the first pipe fill the tank in x hours.

Then,

$$1/x + [1/(x + 6)] = 1/7.2$$

$$(x + 6 + x)/(x^2 + 6x) = 5/36$$

$$(2x + 6)/(x^2 + 6x) = 5/36$$

$$72x + 216 = 5x^2 + 30x$$

$$5x^2 - 42x - 216 = 0$$

$$x = -18/5, 60/5 = -3.6, 12$$

$$x = 12 \text{ (neglect -ive value)}$$

Then the second pipe fills the tank $12 + 6 = 18$ h

47) Answer: E

Given that, the total amount = Rs. 4659

Without Rs.13 of each, the total amount = $4659 -$

$$(13 * 3) = \text{Rs.}4620$$

$$\text{The share of A} = (4620/33) * 9 + 13 = \text{Rs.}1273$$

$$\text{The share of B} = (4620/33) * 11 + 13 = \text{Rs.}1553$$

$$\text{The share of C} = (4620/33) * 13 + 13 = \text{Rs.}1833$$

$$\text{Required difference} = 1833 - 1273 = \text{Rs.}560$$

48) Answer: A

The ratio of two numbers = 11: 23

$$\text{HCF} = 6$$

$$\text{The numbers} = 11 * 6 = 66 \text{ and } 23 * 6 = 138$$

$$\text{Required average} = (66 + 138)/2 = 102$$

49) Answer: E

$$\text{LCM of 12 and 15} = 60$$

Total capacity = 60 litres

$$A = 60/12 = 5 \text{ litres per hour}$$

$$B = 60/15 = 4 \text{ litres per hour}$$

$$\text{One - sixth of the tank} = 60 * 1/6 = 10 \text{ litres}$$

$$\text{Required time} = 10/9 \text{ hours}$$

50) Answer: D

The ratio of present age of P and Q = 3 : 5 ($3x, 5x$)

$$R = Q - 5 = 5x - 5$$

The ratio of present age of S and T = 1 : 2

$$\text{The present age of S} = (34 / 2) = 17 \text{ years}$$

$$(5x + 5x - 5 + 17) = 24 * 3$$

$$10x + 12 = 72$$

$$10x = 60$$

$$x = 6$$

$$\text{The present age of P} = 3x = 18 \text{ years}$$